

**Notice of Allowability**

Application No.

10/032,658

Examiner

Delia M. Ramirez

Applicant(s)

GRAHAM ET AL.

Art Unit

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/15/2003.
2. ☒ The allowed claim(s) is/are 36,38-49,78-81.
3. ☒ The drawings filed on 15 October 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
  - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
  - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
  - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)          |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____.            |
| 3 <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____  | 7 <input checked="" type="checkbox"/> Examiner's Amendment/Comment                  |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
|  | 9 <input type="checkbox"/> Other  |

## **DETAILED ACTION**

### ***Status of the Application***

Claims 36, 38-49, 78-81 are pending.

Amendment of claims 36, 38, 78, cancellation of claim 37, and amendments to the specification, in a communication filed on 10/15/2003 are acknowledged.

In a telephone conversation with Kathleen Tyrrell on 12/19/2003, an agreement was reached to amend claims 36, 38, 78, and 79 to place the application in condition for allowance.

### ***Drawings***

1. The corrected Figure 6 submitted on 10/15/2003 is accepted by the Examiner.

### ***Examiner's Amendment***

2. An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

3. Authorization for this Examiner's amendment was given in a telephone interview with Kathleen Tyrrell on 12/19/2003.

4. Please enter the following amendments to claims 36, 38, 78 and 79 as follows:

36. An isolated or recombinantly expressed antifreeze protein, said protein comprising the following:

- (i) a calculated molecular weight of between 7 and 13 kDa;

Art Unit: 1652

- (ii) a thermal hysteresis activity of greater than 1.5 °C at a concentration of about 1 mg/mL;
- (iii) the N-terminal amino acid motif set forth in SEQ ID NO: 3;
- (iv) at least 70% amino acid sequence identity to the antifreeze protein YL-I (SEQ ID NO: 11); and
- (v) 4 repeats of the 12 contiguous amino acid motif set forth in SEQ ID NO: 1.

38. An isolated or recombinantly expressed antifreeze protein, said protein comprising the following:

- (i) a calculated molecular weight of between 7 and 13 kDa;
- (ii) a thermal hysteresis activity of greater than 1.5 °C at a concentration of about 1 mg/mL;
- (iii) the N-terminal amino acid motif set forth in SEQ ID NO: 3;
- (iv) at least 70% amino acid sequence identity to the antifreeze protein YL-I (SEQ ID NO: 11); and
- (v) 5 to 12 repeats of the 12 contiguous amino acid motif set forth in SEQ ID NO: 1.

78. A liquid comprising a recombinant antifreeze protein, said antifreeze protein comprising the following:

- (i) a calculated molecular weight of between 7 and 13 kDa;
- (ii) a thermal hysteresis activity of greater than 1.5 °C at a concentration of about 1 mg/mL;

Art Unit: 1652

- (iii) the N-terminal amino acid motif set forth in SEQ ID NO: 3;
- (iv) at least 70% amino acid sequence identity to the antifreeze protein YL-I (SEQ ID NO: 11); and
- (v) 4 repeats of the 12 contiguous amino acid motif set forth in SEQ ID NO: 1.

79. A liquid comprising a recombinant antifreeze protein, said antifreeze protein comprising the following:

- (i) a calculated molecular weight of between 7 and 13 kDa;
- (ii) a thermal hysteresis activity of greater than 1.5 °C at a concentration of about 1 mg/mL;
- (iii) the N-terminal amino acid motif set forth in SEQ ID NO: 3;
- (iv) at least 70% amino acid sequence identity to the antifreeze protein YL-I (SEQ ID NO: 11); and
- (v) 5 to 12 repeats of the 12 contiguous amino acid motif set forth in SEQ ID NO: 1.

#### ***Reasons for Allowance***

5. The following is an Examiner's statement of reasons for allowance. Although the prior art discloses antifreeze proteins, the Examiner has found no teaching or suggestion in the prior art directed to the polypeptide of SEQ ID NO: 11. Therefore, claims 36, 38-49, 78-81 directed to antifreeze proteins, or liquid compositions thereof, wherein said proteins have at least 70% sequence identity to the polypeptide of SEQ ID NO: 11, comprise 4-12 motifs as set forth in SEQ ID NO: 1, comprise the motif set forth in SEQ ID NO: 3 at the N-terminus, have a thermal

Art Unit: 1652

hysteresis activity of greater than 1.5 °C at a concentration of about 1 mg/ml, and a molecular weight between 7 to 13 KDa, are allowable over the prior art of record.

6. Claims 36, 38-49, 78-81 are allowed.


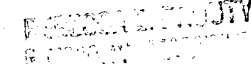
7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delia M. Ramirez whose telephone number is (703) 306-0288. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Ponnathapura Achutamurthy can be reached on (703) 308-3804. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Delia M. Ramirez, Ph.D.  
Patent Examiner  
Art Unit 1652

DR  
December 19, 2003

  
  
1000